

WHAT IS CLAIMED IS:

1. A Hall effect thruster comprising:

at least two acceleration channels;

each of said channels having a closed end and an open end; and

a plurality of flux guides adjacent each of said channels.

2. A Hall effect thruster according to claim 1, further comprising each of said acceleration channels having an annular configuration.

3. A Hall effect thruster according to claim 1, further comprising each of said acceleration channels having a non-annular configuration.

4. A Hall effect thruster according to claim 1, wherein said plurality of flux guides includes an innermost flux guide, an outermost flux guide, and at least one intermediate flux guide situated between two adjacent acceleration channels.

5. A Hall effect thruster according to claim 4, wherein each said intermediate flux guide assists in providing a magnetic field to each of said two adjacent acceleration channels.

6. A Hall effect thruster according to claim 4, wherein each of said flux guides has an electromagnetic coil.

7. A Hall effect thruster according to claim 4, wherein each of said flux guides has a permanent magnet.

8. A Hall effect thruster according to claim 1, wherein each of said acceleration channels has a gas distribution anode for introducing a propellant.

9. A Hall effect thruster according to claim 8, wherein said gas distribution channel in a first one of said acceleration channels introduces a first propellant and a gas distribution channel in a second one of said acceleration channels introduces a second propellant, which second propellant is different from said first propellant.

10. A Hall effect thruster according to claim 1, wherein a first one of said acceleration channels has a discharge voltage different from a discharge voltage of a second one of said acceleration channels.

11. A Hall effect thruster according to claim 1, further comprising at least one cathode for neutralizing current.

12. A Hall effect thruster according to claim 11, further comprising said plurality of flux guide including at least one intermediate flux guide located intermediate two adjacent ones of said acceleration channels and each said cathode being located in a hole in said intermediate magnetic flux guide.

13. A Hall effect thruster according to claim 1, wherein adjacent ones of said acceleration channels generate counter-rotating exhaust streams.

14. A Hall effect thruster according to claim 1, wherein each said channel has non-parallel surfaces.

15. A Hall effect thruster having a compact design comprising:

at least two acceleration channels with a first one of said channels surrounding a second one of said channels;

each of said channels having a closed end and an open end; and

a plurality of flux guides adjacent each of said channels.

16. A Hall effect thruster according to claim 15, wherein said channels are concentric.

17. A Hall effect thruster according to claim 15, wherein said channels are nested.

18. A Hall effect thruster according to claim 15, wherein each of said channels is annular.

19. A Hall effect thruster according to claim 15, wherein each of said channels is non-annular.